

1 VQE results Aer Estimator (With Shots)

(Full Hamiltonian)					Anharmonic Oscillator		$\Lambda = 8$	COYBLA Max 10k Iterations			
Ansatz	Tolerance	Shots	Converged runs	Mean iter	VQE min E.	σ_{min}	Δ_{min}	VQE median E.	Δ_{median}	Exact	Time
RA r1 r1	1e-01	10000	100/100	38	-9.2112e-02	1.3622e+00	-1.2412e-01	9.6974e+00	9.6654e+00	3.201e-02	00h 26m 49s
RA r1 r1	1e-02	10000	100/100	54	1.156e+00	1.2956e+00	1.124e+00	9.0974e+00	9.0654e+00	-	00h 34m 50s
RA r1 r1	1e-03	10000	100/100	69	1.2684e+00	1.1273e+00	1.2363e+00	8.9634e+00	8.9314e+00	-	00h 37m 21s
RA r1 r1	1e-04	10000	100/100	88	1.5836e-01	1.4003e+00	1.2635e-01	7.4805e+00	7.4485e+00	-	00h 46m 28s
RA r1 r1	1e-05	10000	100/100	99	3.9719e-01	1.4252e+00	3.6518e-01	8.1417e+00	8.1097e+00	-	00h 52m 15s
RA r1 r1	1e-06	10000	100/100	111	7.4293e-02	1.2476e+00	4.2282e-02	7.6398e+00	7.6078e+00	-	00h 56m 22s
RA r1 r1	1e-07	10000	100/100	129	2.3559e+00	1.2182e+00	2.3239e+00	8.8127e+00	8.7807e+00	-	01h 00m 22s
RA r1 r1	1e-08	10000	100/100	142	2.3906e-01	1.278e+00	2.0705e-01	8.2004e+00	8.1684e+00	-	01h 06m 24s
Ansatz	Tolerance	Shots	Converged runs	Mean iter	VQE min E.	σ_{min}	Δ_{min}	VQE median E.	Δ_{median}	Exact	Time

Table 1